SUPPORT FOR THE AMENDMENT

Support for the amendment to claim 1 is found on page 7, lines 12-15 of the specification. Support for the amendment to claim 4 is found in claim 1 as currently amended. Support for claim 7 is found on page 10, lines 16-20 of the specification. Support for claim 8 is found on page 10, lines 5-10 of the specification. Support for claim 9 is found on page 11, lines 11-13 of the specification. Support for claim 10 is found on page 12, lines 9-10 of the specification. Support for claims 11 and 12 is found on page 8, lines 6-8 of the specification. No new matter would be added to this application by entry of this amendment.

Upon entry of this amendment, claims 1-12 will now be active in this application.

REQUEST FOR RECONSIDERATION

Gas phase catalytic oxidation is a very common industrial reaction. Difficulties with side reactions and the heat released thereby can may it difficult to conduct such reactions in high yield. Accordingly, a fix-bed multitubular reactor capable of conducting catalytic reactions are sought.

The claimed invention addresses this problem by providing a fixed-bed multitubular reactor comprising a plurality of reaction tubes to be packed with a catalyst, at least a portion of which are arranged to be adjacent to each other to form at least one reaction tube group and which are provided with catalyst temperature measurers in at least a part of the reaction tubes forming the reaction tube group, the position therein differing along the longitudinal direction of the reaction tube. The objective of a fixed-bed multitubular reactor of the present application is to operate an oxidation reaction stably under the optimum condition with a supreme level by measuring temperature distribution precisely and practically in the longitudinal direction of a reaction tube packed with a catalyst so as to monitor the temperature of a hotspot part (in other words, the flow pattern of the heat medium). In order to achieve the objective, the multitubular reactor of the present application has the following unique designs:

A) The plurality of reaction tubes 3 are arranged so as to be adjacent to each other to form a reaction tube group 11 and equipped with the catalyst temperature measures 4.

B) Measurement positions P of the catalyst temperature measures 4 are different from each other.

Applicants have further discovered advantages in providing a plurality of bath temperature measures at positions corresponding to the height of the catalyst temperature measures (claim 7). Such a fixed-bed multitubular reactor is nowhere disclosed or suggested in the cited references of record.

The rejection of claims 1 and 4-6 under 35 U.S.C. §102(b) and of claims 2-3 under 35 U.S.C. §103(a) each over Colling et al. :WO 00/17946 is respectfully traversed.

Colling et al. fail to disclose or suggest the claim features of 1) reaction tubes arranged to form at least one reaction tube group or 2) heat-medium bath temperature measures at the same height as the catalyst temperature measures.

Colling et al. disclose a reactor equipped with a plurality of reactor tubes 120 containing multi-point thermocouples 150. Temperature evaluations can be made of the reaction at various points or levels within the reactor for a vapor-phase reaction. Page 5, lines 26-27 describes that the reactor tubes 120 are **spaced apart** such that, as seen in Figure 2, there is **space 135** between **each and every** reactor tube 120. Figure 3 illustrates the reactor tubes 120 being distributed throughout the tube reactor, with a space separating each of the tube reactors. The reactor is not equipped with the limitations of a plurality of reaction tubes arranged so as to be **adjacent to each other to form at least one reaction tube group** which are equipped with the catalyst temperature measures.

In contrast, the claimed invention is directed to a fixed-bed multitubular reactor in which reaction tubes which are to be packed with a catalyst are arranged so as to be adjacent to each other to form at least one reaction tube group. Applicants note that the claims have been amended to recite that reaction tubes are arranged so as to be adjacent to each other to form at least one reaction tube group.

"At least one reaction tube group" is a claim limitation which is not disclosed or suggested in Colling et al.. As noted above, Colling et al. require that the tube reactors be spaced part such that there is space between each and every reactor tube. There is no suggestion to arrange reaction tubes in a group to form a reaction tube group. The requirement of the reference to have space between each and every reactor fails to make

obvious a configuration in which a reactor tube group is formed as there is not space between each and every reactor tube when configures in a reactor tube group.

As the cite reference fails to disclose the claim limitation of reaction tubes being adjacent to each other to form at least one reaction tube group, the claimed invention is neither anticipated nor rendered obvious by this reference and withdrawal of the rejections under 35 U.S.C. §102(b) and 35 U.S.C. § 102(a) is respectfully requested.

Claim 7

This embodiment of the claimed invention is directed to a reactor in which heat-medium bath temperature measures are provide at the same height as catalyst temperature measurers.

There is no suggestion in the cited reference a reactor in which heat-medium bath temperature measures are provide at the same height as catalyst temperature measurers. More specifically, Colling et al. fail to disclose the existence of heat-medium temperature measures, much less their location at the same height as catalyst temperature measurers. As there is no disclosure or suggestion of this claim limitation, claim 7 is separately patentable.

The rejection of claim 3 under 35 U.S.C. 112, second paragraph has been obviated by appropriate amendment.

Applicants have now amended claim 3 to identify a cooperative relationship between the portions of the fixed-bed multitubular reactor where a heat medium flow and the plurality of reaction tubes. In view of applicants' amendment withdrawal of this ground of rejection is respectfully requested.

Applicants submit that this application is now in condition for allowance and early notification of such action is earnestly solicited.

Respectfully submitted,

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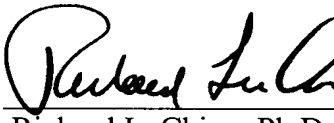

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